

In the Claims:

1. (Canceled) A method for cutting metal, comprising:

heating a metal locally to a molten state;
removing the molten metal from the local area using pressurized gas;
directing the molten metal away from the operator, but on the same side of the metal to which heat was first applied;
adjusting at least one of the position and strength of the heat source with relation to the molten metal so the molten metal flows out of the local area making a cut; and
moving the cutting torch in a direction generally parallel to a desired cut line to expand the cut line.

2. (Canceled) A method for cutting metal according to claim 1, wherein a cutting trench is created when the molten metal is removed from the area.

3. (Canceled) A method for cutting metal according to claim 1, wherein adjusting the position and strength of the heat source comprises varying the distance from the cutting tip to the metal and the flow rate of the oxygen.

4. (Canceled) A method for cutting metal according to claim 1, wherein heating a metal locally to a molten state comprises making the metal almost molten, adding additional pressurized gas causing the metal to become molten.

5. (Canceled) A method for cutting metal, comprising:

heating metal locally to a molten state by holding a cutting torch generally perpendicular to the surface where the cutting torch has a two-part tip which releases both a combustible gas and a combustion enhancing gas and generally in the same direction and has a control means for gradually changing gas pressures;

directing the gases at the molten state at an angle of incidence (α_i) with a horizontal plane of the molten metal of at least about 45 degrees and increasing the flow rate of the combustion

enhancing gas thereby removing the molten metal from the local area creating a cutting trench;
maintaining an angle of incidence (α_i) of at least about 45 degrees to remove the molten metal from the cutting trench so that the molten metal exits the cutting trench in the same direction as the angle of reflection (α_r) away from the operator, but on the same side of the plane of the metal on which the cutting torch is located;

moving the cutting torch in a direction generally parallel to a desired cut line to expand the cut line; and

varying at least one of the distance from the cutting tip to the metal and the flow rate of the oxygen so as to provide heat making a cut.

6. (Canceled) A method for cutting metal according to claim 5, wherein air said control means for gradually increasing gas pressure comprises an easy-on air lance.

7. (Canceled) A method for cutting metal according to claim 5, wherein the combustible gas is propane and it is adjusted between about 35 to 80 psi.

8. (Canceled) A method for cutting metal according to claim 5, wherein the combustible gas is chemtane and it is adjusted between about 35 to 80 psi.

9. (Canceled) A method for cutting metal according to claim 5, wherein the combustion enhancing gas is oxygen and it is adjusted between about 150 and 220 psi.

10. (Canceled) A method for cutting metal according to claim 5, wherein the combustion enhancing gas is a dual liquid oxygen source.

11. (Canceled) A method for cutting metal from ships, comprising:

heating metal locally to a molten state by holding a cutting torch generally perpendicular to the surface, where the cutting torch with control means has a two-part tip which releases both a combustible gas and a combustion enhancing gas in the same general direction, with the combustible gas adjusted between about 35 to 80 psi and oxygen adjusted between about 150 and

220 psi;

directing the gases at the molten metal at an angle of incidence (α_i) with a plane of the molten steel of at least about 45 degrees and increasing the flow rate of the combustion enhancing gas, thereby removing the molten metal from the local area creating a cutting trench;

maintaining an angle of incidence (α_i) of at least 45 degrees to remove the molten metal from the cutting trench so that the molten metal exits the cutting trench in the same direction as the angle of reflection away (α_r) from the operator, but on the same side of the plane of the metal on which the cutting torch is located;

moving the cutting torch in a direction generally parallel to a desired cut line to expand the cut line; and

varying the distance from the cutting tip to the metal and the flow rate of the oxygen so as to provide heat making a cut.

12. (Canceled) A method for cutting metal according to claim 11, wherein the control means is an easy-on air lance.

13. (Canceled) A method for cutting metal according to claim 11, wherein the two-part tip is size No. 6 through No. 10 cutting tip.

14. (Canceled) A method for cutting steel from ships comprising:

heating steel locally to a molten state by holding a cutting torch generally perpendicular to the surface where the cutting torch is a propane-oxygen cutting torch having a two-part No. 8 Propane straight tip which releases both propane and oxygen in the same general direction, with the propane adjusted to about 60 psi and oxygen adjusted to about 200 psi, and having an easy-on air lance;

directing the propane-oxygen gases at the molten steel at an angle of incidence (α_i) with a plane of the molten steel of at least about 45 degrees and increasing the flow rate of the oxygen thereby removing the molten steel from the local area creating a cutting trench;

maintaining an angle of incidence (α_i) of at least about 45 degrees to remove the molten steel from the cutting trench so that the molten steel exits the cutting trench in the same direction

as the angle of reflection (α_r) away from the operator but on the same side of the plane of the steel on which the cutting torch is located;

moving the cutting torch in a direction generally parallel to a desired cut line to expand the cut line;

varying the distance from the cutting tip to the steel and the flow rate of the oxygen so as to provide heat making a cut.

15. (Currently Amended) A method for cutting metal comprising:

providing high pressure oxygen gas to a cutting torch from a liquid oxygen source;

providing a combustible gas to said cutting torch, wherein said combustible gas is selected from a group consisting of: propane, chemtane, propylene, MAPP, and natural gas;

delivering said combustible gas to said torch at a pressure between 15 and 80 psi;

positioning the cutting torch so that it forms an angle of incidence with the surface to be cut;

preheating a metal to a molten state;

increasing the flow of the oxygen gas so that a cut is formed or expanded;

moving the cutting torch in the direction of the cut; and

cutting at least a portion of the metal exposed to the cutting torch; and

controlling the angle of incidence of the cutting torch and a flow of oxygen gas to remove molten metal from a cutting trench at an angle of reflection away from the cutting torch.

16. (Original) A method for cutting metal according to claim 15, further including the step of ensuring that the liquid oxygen does not freeze a hose.

17. (Original) A method for cutting metal according to claim 15, wherein the angle of incidence is less than 45 degrees.

18. (Currently Amended) A method for cutting metal according to claim 15, wherein the step of cutting at least a portion of the metal includes moving the cutting torch is at a rate of at

least 2 feet per minute.

19. (Currently Amended) A method for cutting metal according to claim 15, wherein the step of cutting at least a portion of the metal includes moving the cutting torch is at a rate of at least 4 feet per minute.

20. (Currently Amended) A method for cutting metal according to claim 15, wherein the step of cutting at least a portion of the metal includes moving the cutting torch is at a rate of at least 5 feet per minute.

21. (Currently Amended) A method for cutting metal according to claim 15, wherein the step of cutting at least a portion of the metal includes moving the cutting torch is at a rate of at least 7 feet per minute.

22. (Original) A method for cutting metal according to claim 15, wherein the method also comprises the step of limiting the oxygen flow pressure to between 150 psi and 220 psi.

23. (Original) A method of cutting metal comprising:
providing a two part tip cutting torch;
positioning the cutting torch to cut metal;
preheating the metal;
fueling the torch with a combustible gas and oxygen from a liquid oxygen source; and
forming a cut in the metal.

24. (Cancel) A method of cutting metal according to claim 23, further comprises the step of preheating a length of metal the length of the flame.

25. (Currently Amended) A method of cutting metal according to claim ~~24~~ 23, further comprises the step of increasing oxygen flowing to the cutting torch to between 150 and 220 psi.

26. (Original) A method of cutting metal according to claim 25, further comprises the step of ensuring the liquid oxygen does not freeze a line.

27. (Currently Amended) A metal cutting apparatus comprising:
combustible gas selected from a group consisting of: propane, chemtane, propylene, MAPP, and natural gas;
a two part tip cutting torch;
a regulator;
hoses;
heater; and
liquid oxygen, wherein the liquid oxygen is passed through a heater so that the cutting torch uses oxygen gas of at least 150 to 220 psi and the hoses do not freeze.

28. (Currently Amended) A method for cutting metal comprising:
positioning a two part tip cutting torch generally perpendicular to a surface;
preheating ~~an elongated~~ a local area;
providing a combustible gas, wherein said combustible gas is selected from a group consisting of: propane, chemtane, propylene, MAPP, and natural gas;
increasing employing gas pressure of oxygen to between at least 150 and 220 psi of oxygen gas;
removing molten metal at an angle of reflection; and
moving the cutting torch parallel to the line of cut.

29. (Original) A method for cutting metal according to claim 28, further comprising the step of preventing freezing of a hose.

30. (Currently Amended) A method for cutting metal according to claim 29, further comprising the step of ~~moving the~~ cutting part of the metal torch at a rate of at least 15 inches per minute.

31. (Currently Amended) A method for cutting metal according to claim 29, further comprising

the step of moving the cutting torch part of the metal at a rate of at least 5 feet per minute.

32. (Cancel) A method for cutting metal according to claim 28, further comprising the step of providing propylene as the combustible gas.

33. (Cancel) A method for cutting metal according to claim 28, further comprising the step of providing propane as the combustible gas.

34. (Original) A method for cutting metal according to claim 28, further comprising the step of adjusting the position of the torch to maintain the cut.

35. (New) A method for cutting metal according to claim 23, wherein said combustible gas is delivered to said cutting torch at a rate between 15 and 80 psi.

36. (New) A method for cutting metal according to claim 28 wherein said combustible gas is delivered to said cutting torch at a rate between 15 and 80 psi.